



## PAPER 11

### Dzud Disaster and the Pastoralist Dropout

Telmen Erdenebileg, Child Poverty and Humanitarian Programs Manager, Save the Children in Mongolia

#### 1 Introduction

Rural to urban migration has been a defining demographic trend in Mongolia for nearly a half century, with a particularly sharp increase in the last two decades since the end of the socialist era.<sup>1</sup> While only 22 percent of Mongolia's population lived in urban areas in 1956, today the figure is approximately 70 percent. In the last 25 years, around 20 percent of the country's inhabitants have moved to the capital city Ulaanbaatar, now home to almost half of Mongolia's population.<sup>2</sup> This ever-increasing expansion of Mongolia's urban centres is placing stress on the country's social services and infrastructure.

On 9 January 2017, the Mayor of Ulaanbaatar S.Batbold issued the Restriction Action Resolution A/17 to limit rural to urban migration in an attempt to combat air pollution. The decree restricted rural residents from migrating to Ulaanbaatar until 1 January 2018. Residents who required urgent healthcare provisions and who already owned an apartment or had a mortgage loan were exempt from the ban.

One of the main factors behind the increase in rural to urban migration is a periodic weather phenomenon known locally as a *dzud* – a cyclical, slow-onset natural disaster unique to Mongolia. The dzud combines a harsh summer drought with a severe winter – temperatures as low as -40°C with heavy snow, 10–350 cm deep – and poses a real and dangerous threat to livestock. Vulnerable herder communities are victims of the dzud, with basic social services such as transportation, health and education risking collapse under the severe weather phenomenon. In 2017, Mongolian herder families faced the dzud for the second consecutive year and humanitarian agencies responded to the disaster. This paper aims to briefly highlight the consequences of the dzud and the impact of the “pastoralist dropout”.

#### 2 Pastoralist dropout

##### 2.1 Nomadic pastoralism in Mongolia

Mongolian culture is deeply influenced by the nomadic-pastoralist tradition. After the mining sector, agriculture is the highest contributor to the Mongolian economy with livestock husbandry contributing 13 percent of total GDP and its workers making up approximately 27 percent of the total labour force.

Over a third of the country's population directly rely on livestock as a primary source of income. As of 2016, more than 60 million livestock were entirely managed by a nomadic transhumant system of herding and 213,400 households owned livestock, with 149,700 (70 percent) classified as “herder households”.

The threshold of subsistence for a herder household in a Mongolian pastoralist community is 200 livestock. Almost half (47.6 percent) of herder households own less than 200 livestock while 4.5 percent own more than 1,000 livestock. Despite its shortcomings, the sector remains paramount for food security for hundreds of thousands of Mongolian households and is still a common source of cultural identity.

## 2.2 Pastoralist dropout and its implications

The term “pastoralist dropout” represents a herder household that has abandoned a traditional pastoral livelihood for a non-pastoral livelihood in peri-urban or urban centres. There are two main causes for pastoralist dropout: complete or partial loss of livestock and difficulty accessing public services such as education and healthcare, particularly during winter when an isolated herder household must travel up to 80 km to a *soum* (administrative district) to access basic public services.

In recent decades, climatological changes and the subsequent increase to the frequency of natural hazards – i.e. drought and dzud – are the primary causes of livestock loss in Mongolia. The average annual temperature increased 2.07-fold between 1940 to 2013<sup>3</sup>, an increase more than double the world average. The rise of temperature has decreased annual precipitation by 9.4 percent and increased the number of hot days by 16–25 days. Moreover, 78.2 percent of pastures are affected by moderate to severe degradation in Mongolia, which means declined grass yield as well as negative diversity of pastureland vegetation. The chronic poverty and the lack of sustainable livestock management policy also exacerbates the problem and contributes to further loss of livestock.

The pastoral dropout occurs in a phased manner. It usually starts with migration to the nearest and most familiar provincial centre and often ends in Ulaanbaatar or other larger urban centres<sup>4</sup>. Ex-herder households usually settle in *ger khoroolol* (ger districts – a traditional ger is a portable, round tent covered with skins or felt and used as a dwelling by nomads in makeshift residential districts) with a lack of access to basic services such as water, health, education, and sanitation, etc. Identifying the disaster effects on the pastoralist dropout remains problematic.

In general, the ex-herder household faces an absolute lack of financial resources following the migration. Low-level education levels and transferable skills means it is extremely difficult for ex-herders to find decent employment opportunities in urban centres and, with reduced purchasing power, they are at risk complete dependence on social welfare. The insubstantial and unstable household income lowers access to adequate food consumption for families and children.

The impact on these growing urban centres is also dire. The increased population not only places stress on urban public services – healthcare, education and transportation – but also contributes to an increase in unemployment and poverty. The most substantial effect of this migration, however, is the negative environmental impact caused by the escalation of soil degradation and the catastrophic air pollution in the new urban area. According to the Mongolian National University of Medical Sciences, approximately 1,250 adults and 120 children are dying every year due to illnesses and disease caused by or exacerbated by air pollution in Mongolia. The levels of fine particulate matter (PM<sub>2.5</sub>) – part of what causes pollution to be damaging to human health – has been recorded as 80 times higher than the norm set by the World Health Organisation (WHO), with the situation predicted to worsen over the next 10 years. According to the WHO, 80 percent of air pollution in Ulaanbaatar is caused by stoves in the ger districts.

## 3 Dzud and the humanitarian situation

### 3.1 Dzud classifications and triggers

Dzud is a slow-onset disaster unique to Mongolia. It is a series of events with a cumulative impact rather than a single isolated event. Dzud usually consists of a summer drought followed by heavy snow (10–350 cm) and extreme cold (down to -40°C), which results in insufficient hay stockpiles and grazing pastures in the winter months. It also creates major challenges for many basic human services and, in the long term, it leads to a collapse of livelihoods in vulnerable herder communities.

The dzud is not a new phenomenon. In 45 CE, the Xiongnu (second sovereign state of a nomadic people living in the territory in today's Mongolia) suffered from repeated droughts resulting in two thirds of its people and domestic animals dying of hunger and illness, forcing the mass migration to and resettlement in today's central China<sup>5</sup>. In 1945, Mongolia faced the worst dzud in recent history, killing one third of the national livestock. In 2000 and 2010, dzud killed around 10 million and 8 million livestock respectively.

In recent years, the frequency and amplitude of dzud has increased compared to the last two decades<sup>6</sup>. Moreover, the strained Mongolian economy, mining sector expansion, livestock productivity and overgrazed pastureland has exacerbated the impact of the dzud and increased the vulnerability of herder communities.

In 2015 the Mongolia government approved the Regulation for Assessing Drought and Dzud Condition. However, the regulation needs to be further developed as it only measures the current dzud triggers with its assessment methodology based primarily on the general metrological situation i.e. snow level, snow density and the air temperature.

### 3.2 Humanitarian response

In 2016 and 2017 Mongolian herder families suffered from two consecutive dzud disasters. Humanitarian agencies were forced to respond. Despite the magnitude of the disasters not equalling the devastation caused by the 2000 or 2010 dzuds, the 2016 and 2017 disasters resulted in the death of 1,079,455 and 469,000 livestock and negatively impacted 79,000 and 65,000 herder households respectively. Vulnerable and affected herders need support for social and economic recovery during and after the dzud when they are most at risk of dropping out of the traditional pastoralist livelihood; these households mainly depend on their livestock and some form of government support (e.g. child subsidies and pensions) to meet their needs. It is also important to consider the long-term impact of the dzud when considering the localised and individualised effect of the disaster. The expected loss of income from livestock and the lower autonomous re-stocking rates for vulnerable herders are worrying, as it will negatively influence their ability to reimburse current debts and to cover their future basic needs.

In 2017, the Mongolian government spent ₮8.3 billion (US\$3.4 million) from the state reserve fund for hay; livestock feed and medicine; automobiles for local health centres; winter clothes, and; cash-based assistance. However, there was still a high demand for hay, fodder, veterinary support, medicines petrol/fuel support for local health centres, food parcels and the delivery of basic social welfare services to the herders to mitigate the high loss of livestock.

Due to slow onset and impact of the natural disaster, the dzud receives little attention and interest from international donors. According to the Humanitarian report of UN, US\$20.9 million was required to respond effectively to the crisis in Mongolia, however only US\$10.76 million could be raised by the humanitarian agencies for the 2016 and 2017 response. The humanitarian response therefore focused more on addressing the herder households' immediate basic needs, including provision of animal feed, food parcels and cash transfer to the most vulnerable households. However, few agencies were able to provide a multi-sectorial dzud response that addressed the health, education and early recovery needs of dzud-affected population in Mongolia. Vulnerable households still require ongoing support to improve their livestock management and to increase the strength, health and quality of herds.

## 4 Summary and Conclusion

Mongolia's pastoralist dropout is having a devastating impact its nomadic-pastoral communities, with broader detrimental social and environmental impacts on its urban centres. The frequency and amplitude of extreme climate events such as drought and dzud have increased since over the past decades. These extreme weather events, together with fast escalating environmental changes, not only threaten the livelihood of thousands of Mongolian herders, but the valuable tradition of nomadic-pastoralism in Mongolia.

There is an urgent need to further understand dzud triggers and research assessment methodologies, along with a sophisticated early warning system to mitigate the dzud related risks, and to determine the accurate severity of the crisis to deliver timely and targeted humanitarian assistance. Furthermore, reassessing Mongolia's pastureland management and sustainable livestock policy, together with innovating the nomadic transhumant system of herding, and empowering herders to have alternative income sources should be considered to help herder communities to be increasingly adaptive and climate resilient and prepared for dzud.

## Endnotes

- <sup>1</sup> Save the Children, Shifting Livelihoods: Trends of Pastoralist Drop-Out and Rural to Urban Migration in Mongolia, 2013
- <sup>2</sup> National Statistic Office, [www.1212.mn](http://www.1212.mn)
- <sup>3</sup> Mongolia Second Assessment Report on Climate Change-2014, Ministry of Environment and Green Development of Mongolia, 2014
- <sup>4</sup> Save the Children, Shifting Livelihoods: Trends of Pastoralist Drop-Out and Rural to Urban Migration in Mongolia, 2013
- <sup>5</sup> A traditional yurt (from the Turkic languages) or ger (Mongolian) is a portable, round [tent](#) covered with skins or [felt](#) and used as a [dwelling](#) by [nomads](#) in the [steppes](#) of [Central Asia](#).
- <sup>6</sup> Relationship between Climatic Change and the Nomadic Southward Migrations in Eastern Asia during Historical Times, Fang, L.Q. and Liu, G. ,1992
- <sup>7</sup> Vegetation response to extreme climate events on the Mongolian Plateau from 2000 to 2010, Ranjeet John et al., 2013